Follow-Up to "Making Connections"

The Impact of Air Quality Regulations on Distributed Generation

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Key Findings and Recommendations

Emissions Credit for CHP

?*Finding*: Making use of the one-half to two-thirds of energy lost as waste heat in most electrical generation is the easiest and best way to increase the overall efficiency of the nation's thermal and electric generation infrastructure. Because DG occurs near the user, it provides far more opportunities to use this waste heat in CHP applications than do large central generation plants. Very few air emission programs, however, now give direct credit for the thermal application side of CHP projects. None of the 14 CHP case studies evaluated for this report received credit for applying CHP.

?*Recommendation*: Air quality permitting should provide credit for both the thermal and electric output of CHP projects. This can be done either as a netting reduction or as part of calculating compliance with fixed emission limits.

Emissions Credit for Avoided or Offset Emissions

?*Finding*: DG projects are uniquely suitable for using otherwise wasted fuel such as flared natural gas or methane from landfills. CHP DG projects may replace thermal equipment such as boilers. In most of these cases DG projects are not credited for the previous emissions. This discourages replacement of old high-emission equipment and beneficial use of wasted energy.

?*Recommendation*: Air quality permitting should provide credit for avoided or offset emissions when DG projects replace existing equipment or use fuels or wastes previously flared or incinerated. As with CHP, this can be done by netting or with credits in calculating emission compliance levels.

Uniform Standards for DG Equipment

?*Finding:* The complex, case-by-case permitting process designed for "large" generators is inherently incongruous with application to small, standardized DG technologies relying on "mass production" and ease of installation for their economic viability.

?*Finding:* The cost of add-on air emission control technologies is relatively insensitive to size. Applying stringent add-on or percentage reduction requirements to small projects such as DG can cost far more per unit of electricity produced or pollutant emitted than for large projects, especially if the small projects are relatively clean to begin with.

?*Finding:* Current emission permit systems based on requiring add-on pollution control equipment and case-by-case review processes give little or no credit for the initial choice of inherently low-emission generating equipment or the development of built-in pollution prevention technology that reduces emissions more effectively than add-on equipment.

?*Recommendation*: Air quality permitting for DG should be based on uniform national standards for DG equipment. Those standards should be output based; i.e. maximum units of emissions per unit of energy produced. They should be reasonably achievable. They should allow equipment to be pre-certified as meeting various regulatory standards. This would also recognize and encourage inherently low-emission and higher efficiency equipment design.

Market-Based Regulatory Structures

?*Finding:* Experience has shown that emission trading in the United States is a cost effective and flexible structure for emission reduction. Administration proposals for future environmental regulation are expected to rely heavily on such mechanisms.

?*Recommendation*: Market-based air quality regulatory programs such as emissions trading should specifically provide for participation of DG projects.

Key Findings and Recommendations Emissions Credit for CHP

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Uniform Standards for DG Equipment

Finding: The complex, **case-by-case permitting process** designed for "large" generators is inherently incongruous with application to small, standardized DG technologies relying on "mass production" and ease of installation for their economic viability.

Finding: The **cost of add-on air emission control technologies is relatively insensitive to size.** Applying stringent add-on or percentage reduction requirements to small projects such as DG can cost far more per unit of electricity produced or pollutant emitted than for large projects, especially if the small projects are relatively clean to begin with.

Finding: Current emission permit systems based on requiring add-on pollution control equipment and case-by-case review processes give little or no credit for the initial choice of **inherently low-emission generating equipment or the development of built-in pollution prevention technology that reduces emissions more effectively than add-on equipment.**

***Recommendation*: Air quality permitting for DG should be based on uniform national standards for DG equipment.** Those standards should be output based; i.e. maximum units of emissions per unit of energy produced. They should be reasonably achievable. They should allow equipment to be pre-certified as meeting various regulatory standards. This would also recognize and encourage inherently low-emission and higher efficiency equipment design.

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United States General Accounting Office

GAO

Report to Congressional Committees

GAO-02-427

May 2002

RESTRUCTURED ELECTRICITY MARKETS

Three States' Experiences in Adding Generating Capacity

Conclusions

Developers can be deterred from building a power plant if the market has lengthy delays between making the proposal and selling electricity. These delays increase a developer's uncertainty whether the proposed project will be approved and whether additional costs will be incurred that reduce the plant's profitability. In this context, interconnection agreements are critical in assessing profit and risk. Lengthy negotiations over interconnection terms and conditions can increase the risk of developing a new power plant because forecasts of market conditions in the more distant future are less reliable than near-term forecasts. Texas was able to reduce delays in negotiating these agreements, in part because the Texas PUC's standard agreement already specified many of the parties' responsibilities. In contrast, under rules approved by FERC, California and Pennsylvania allowed developers and transmission system owners to negotiate their responsibilities, which has resulted in a lengthy process— more than twice as long as in Texas. A standard agreement also provides better assurance that transmission owners will treat all developers of new power plants equally. In addition, Texas' rules provided a clear method for allocating costs associated with upgrading the transmission system, which appear to have sped negotiations because the amount and allocation of these costs are not contested.

GAO Report Dated May 2002

RESTRUCTURED ELECTRICITY MARKETS
Three States' Experiences in Adding Generating Capacity

"Recommendations for Executive Action

To facilitate development of power plants needed in restructured markets and to provide comparable treatment for all developers, we recommend that the Chairman of the Federal Energy Regulatory Commission, in consultation with transmission system owners, power plant developers, [state commissions] and lenders,

(1) develop and require the use of a standardized interconnection agreement and

(2) clarify how transmission system upgrade costs are allocated."

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FERC

FERC's recent notice of proposed rulemaking (NOPR)

Standardizing Generator Interconnection Agreements and Procedures - Notice of Proposed Rulemaking, Docket No. RM02-1-000, issued April 24, 2002

While the bulk of the FERC's 193-page notice and discussion focused on large units, they also included provisions for the interconnection of small generation equipment defined as those units less than 20 megawatts (MW) in capacity.

The FERC intends to adopt a standard generator interconnection agreement together with a standard interconnection procedure that would become part of the open transmission tariff of every public utility.

Expectations for FERC

- Consider GAO report
- FERC “Big Ticket” Chart says issue final rule by December 2002

FERC "Big Ticket" List
Revised 6-28-02

ID	Complete	FERC Big Ticket List Tasks & Milestones- 6/28/02	Start	Finish
1		STANDARD MARKET DESIGN FOR ELEC WHOLESALE MKTS (RM01-12)		
2	X	Comments Due on SMD Options Paper		May 2002
3	X	Informal Communications/Outreach on SMD Tariff	May 2002	June 2002
4		Conference on SMD Data and Software Needs		July 18, 2002
5		Issue NOPR on Proposed SMD Tariff		Summer 2002
6		Comments Due on SMD Tariff NOPR (75 days after issuance)		Fall 2002
7		Issue Final Rule on SMD Tariff		Fall 2002
8		GENERATOR INTERCONNECTIONS-TERMS, CONDITIONS, PRICING (RM02-1)		
9	X	Comments Due on Interconnection NOPR		June 2002
10		Issue Final Rule on Generator Interconnections		December 2002

Useful References

- NARUC Feb 2002 Resolution Endorsing the Development of Model Interconnection Agreement and Procedures
  http://www.naruc.org/Resolutions/2002/winter/elec/model_interconnection.html
- NARUC Interconnection Project see **www.eren.gov/distributedpower/**
- FERC Generation Interconnection Activities http://www.ferc.fed.us/electric/gen_inter.htm
- DOE/NREL Distributed Power Program
  Web Site for Current Information http://www.eren.doe.gov/distributedpower/
- **GAO Report, www.eren.gov/distributedpower/**
- **Air Quality Permitting for DG report, see www.eren.gov/distributedpower/**